



Armed Forces College of Medicine

AFCM



Front of leg

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Mohamed**

INTENDED LEARNING OBJECTIVES (ILO)



By the end of this lecture the student will be able to:

- Describe the attachments, action and nerve supply of muscles of front of leg
- Define attachment and structures passing behind extensor retinacula
- Describe root value, origin, course and branches of anterior tibial (deep peroneal) nerve
- State beginning, course and branches of anterior tibial artery

Lecture Plan



1. Part 1 : leg compartments
2. Part 2 : Tibialis anterior, extensor hallucis longus ,
extensor digitorum , peroneous tenuis
3. Part 3 : summary of anterior compartment
4. Lecture Quiz

Compartments of leg



Interosseous Membrane

Anterior c

lateral

**Posteri
or**

Leg is divided into

**1- anterior
compartment**

2- lateral compartment

**3- posterior
compartment**

FASCIAL SEPTUM

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Anterior compartment



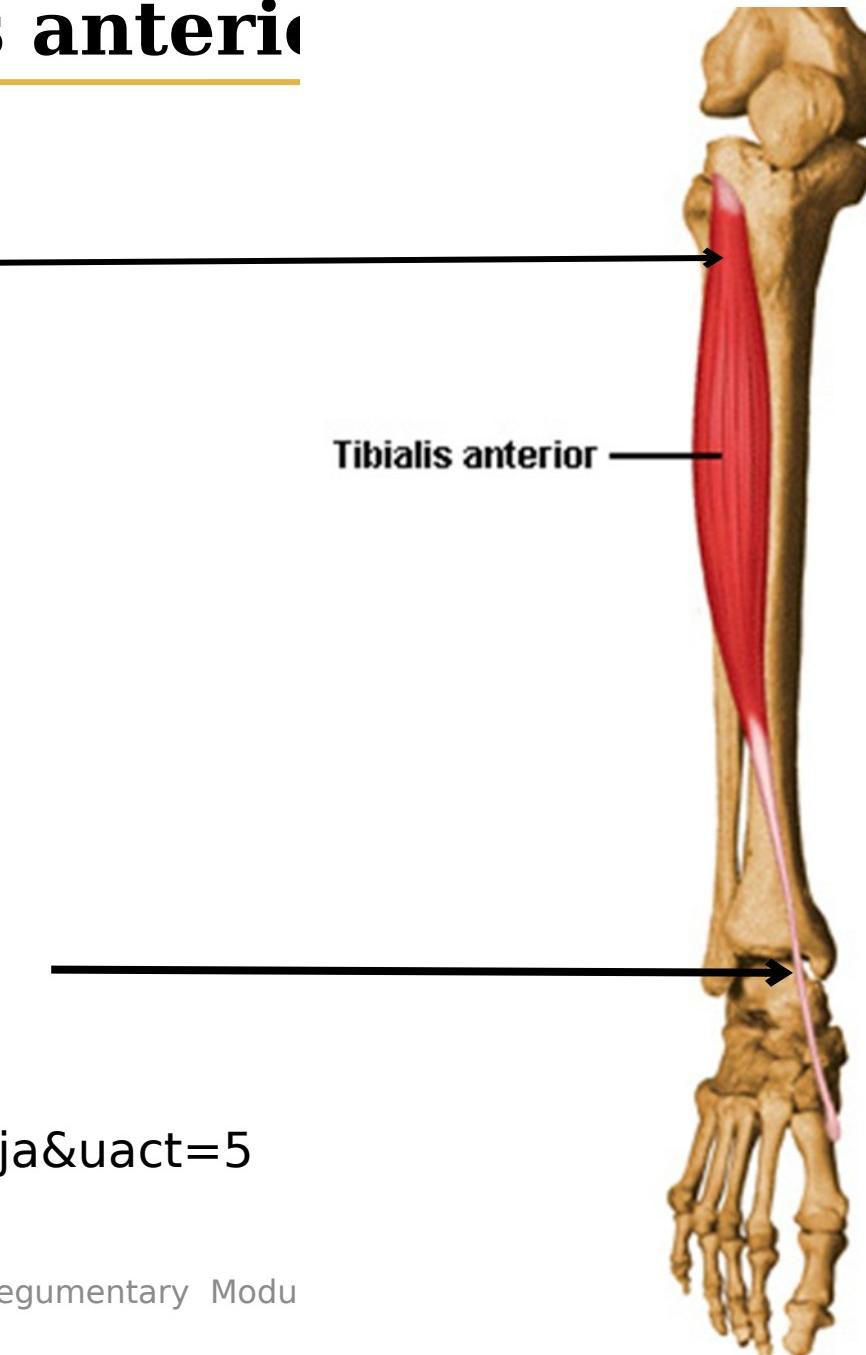
- 1. Muscles** : tibialis anterior, extensor hallucis, extensor digitorum longus , peroneus tertius muscle
- 2. Nerve**: Anterior tibial nerve
- 3. Vessel** :Anterior tibial vessels

Tibialis anterior



Origin : from the upper 2/3 of the lateral surface of tibia

Insertion : into the medial cuneiform bone and the base of first metatarsal bone



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Extensor hallucis longus

**Origin : from the middle
2/4 of the medial surface
of fibula.**



**Insertion : into the
dorsum of the base of
distal phalanx of the big
toe.**



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Extensor digitorum longus



**Origin : from the upper 3/4
of the medial surface of
fibula.**



Extensor
digitorum longus

**Insertion : by four
tendons one for each of
the lateral 4 toes by
extensor expansion.**



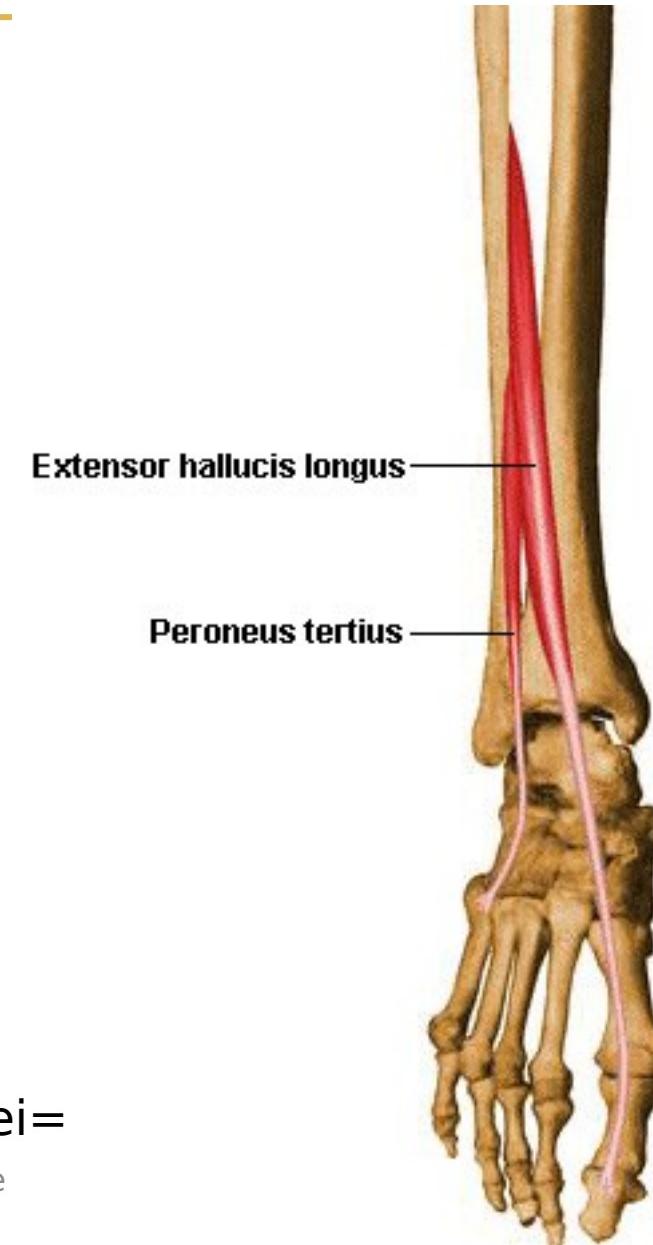
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Peroneus tertius

**Origin : from the lower 1/4
of the medial surface of
fibula .**

**Insertion : into the
dorsum of the base of fifth
metatarsal bone .**

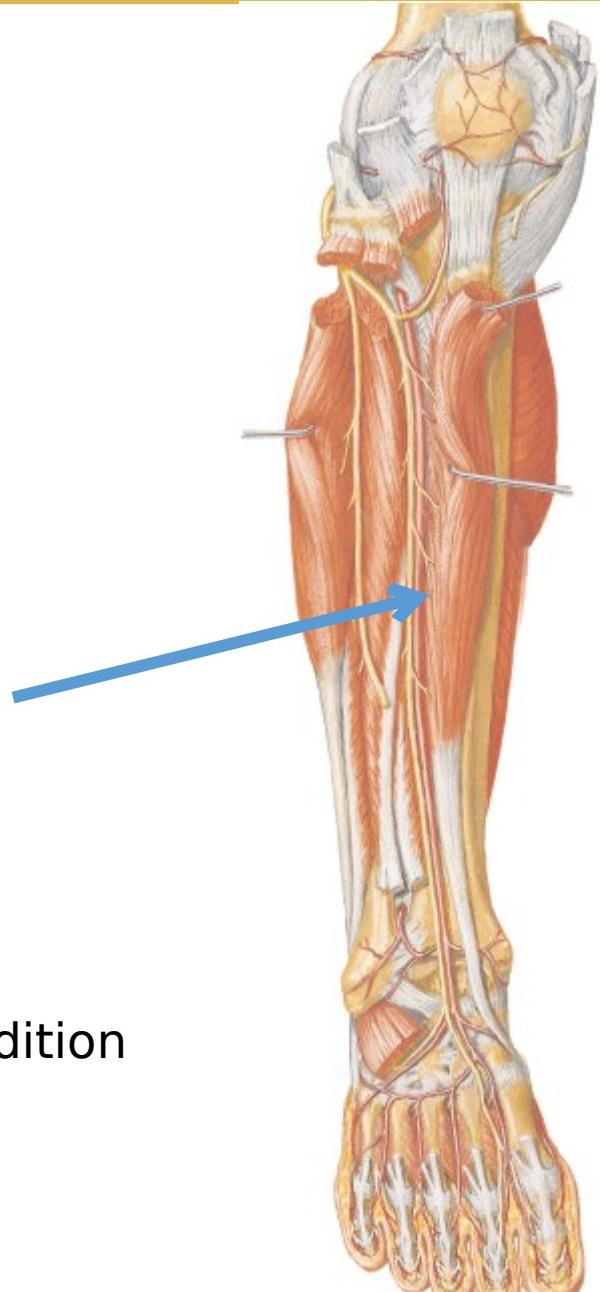


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Nerve supply

**All muscles of anterior compartment
are supplied by
Anterior tibial or deep peroneal nerve**

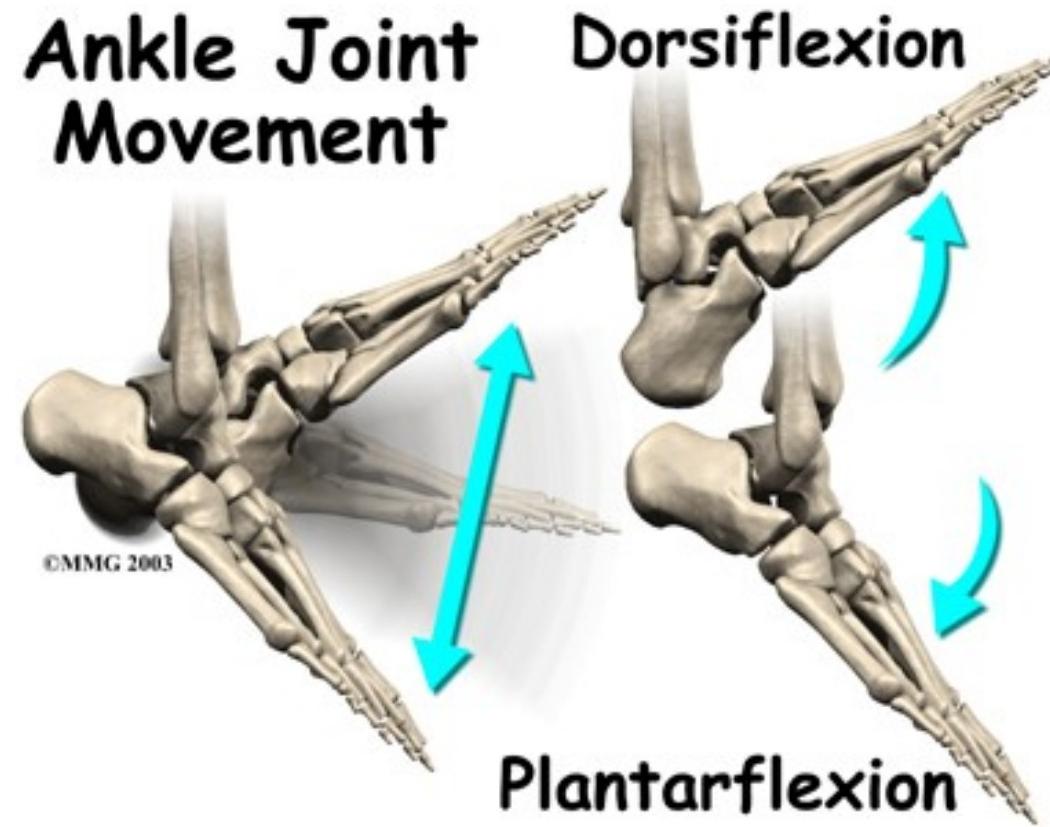


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Action of muscles of anterior compartment



muscles of anterior compartment produce dorsiflexion





Action of muscles of anterior compartment

~~1) *Vivians anterior.*~~

important **invertor** of the foot when it is raised from the ground.

2) *Extensor hallucis longus:*

extends the metatarsophalangeal and interphalangeal joints of the big toe.

3) *Extensor digitorum longus:*

extends the metatarsophalangeal and interphalangeal joints of the lateral **4** toes.

4) *Peroneus tertius:*

eversion of the foot



Anterior tibial nerve

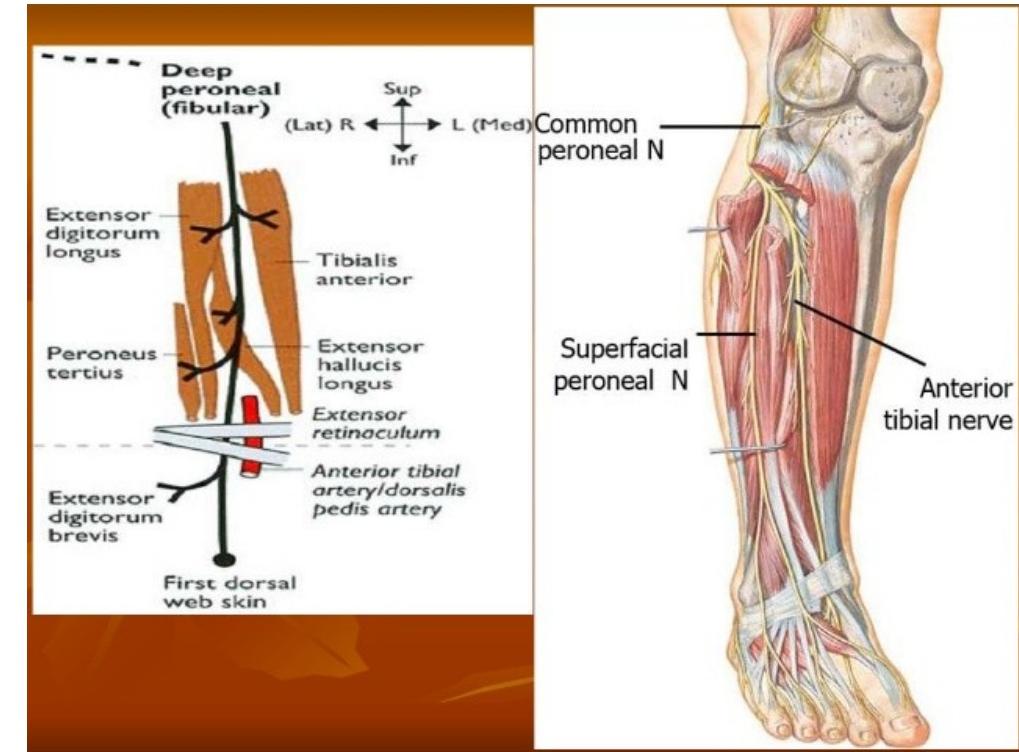
-It is one of the two terminal branches of the **common peroneal nerve**.

-it pierce the anterior intermuscular septum to reach anterior compartment .

-The nerve **lies lateral to the anterior tibial vessels** in the upper part of the leg then in **front of the vessels** then **lateral** to them in the lower part of the leg.

-lies under cover of the superior extensor retinaculum.

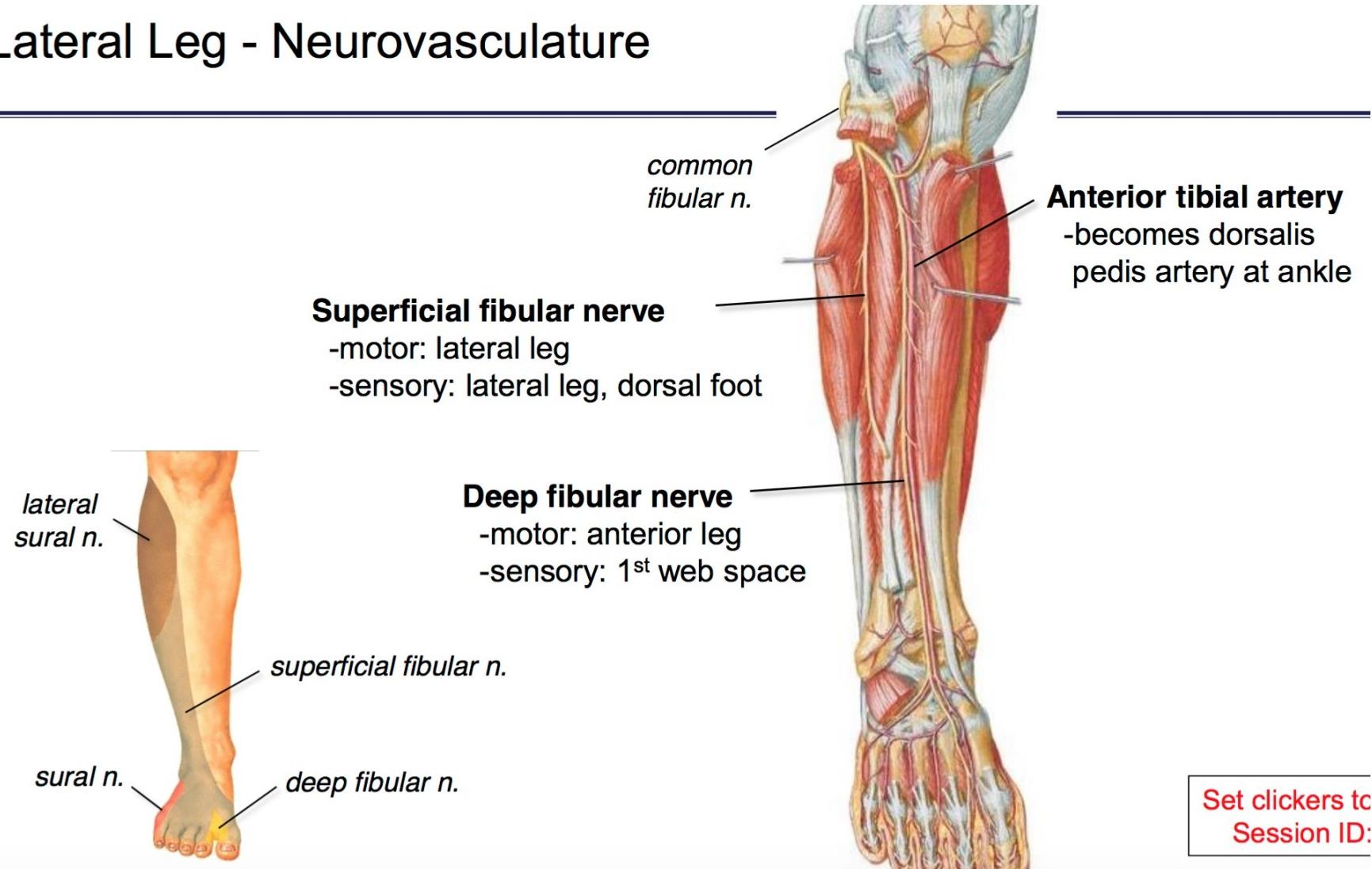
- It divides in the dorsum of the foot into **medial and lateral**





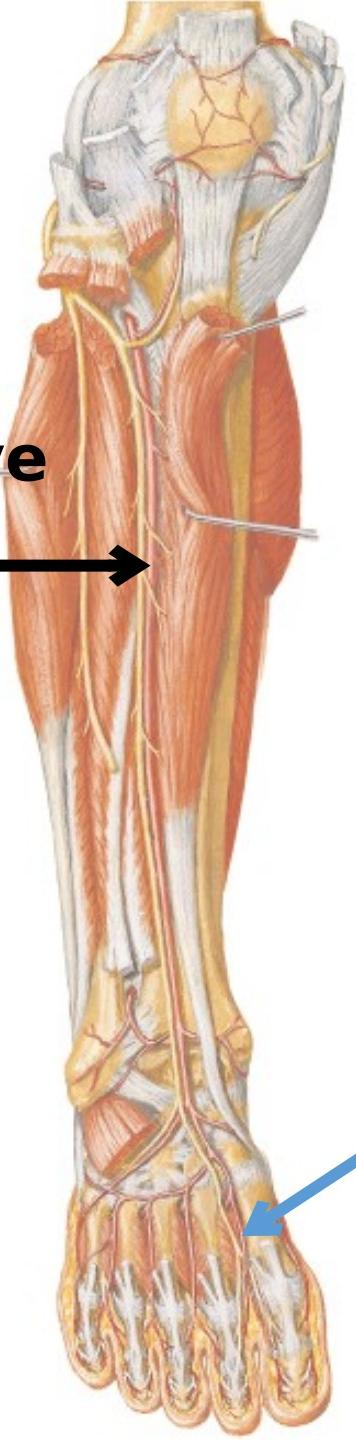
Anterior tibial nerve

Lateral Leg - Neurovasculature



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Anterior tibial nerve



Terminal branches

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Branches of anterior tibial nerve



**Muscular to
all muscles
of the
anterior
compartment**

**Articular
to the
ankle
joint**

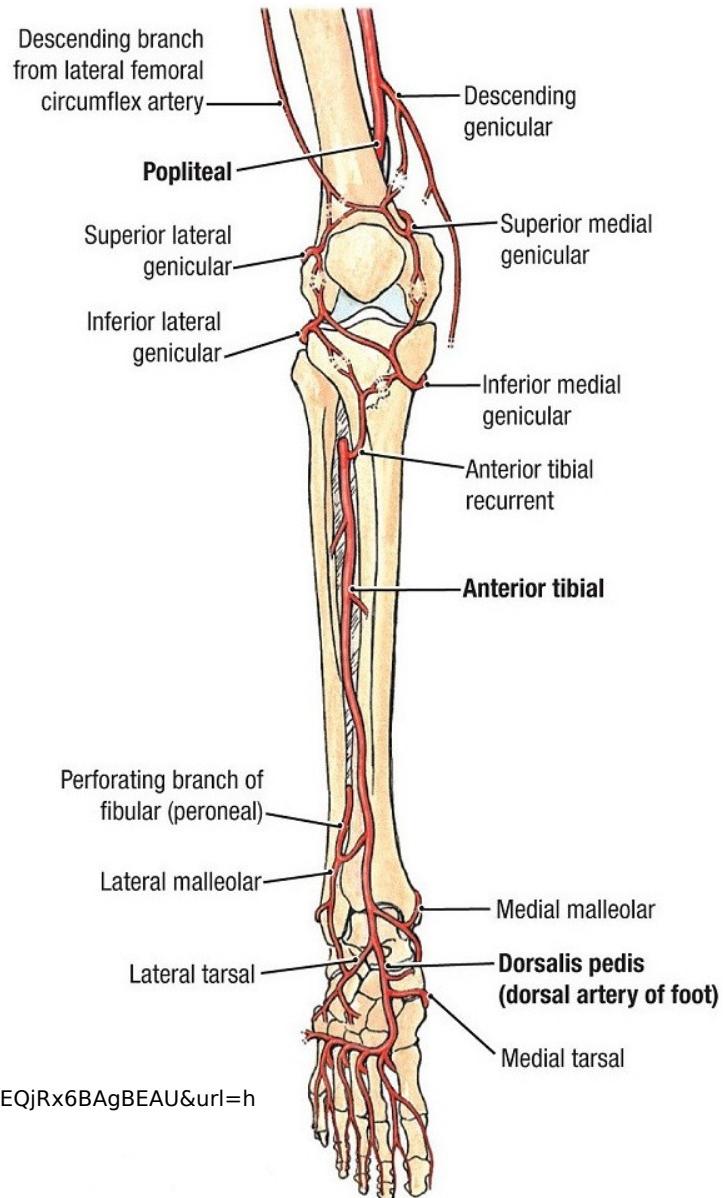
**Terminal
branches**
Medial br. To
the skin of
adjacent sides
of big and
second toe
Lateral br. To
**extensor
digitorum
brevis muscle**



Anterior tibial artery

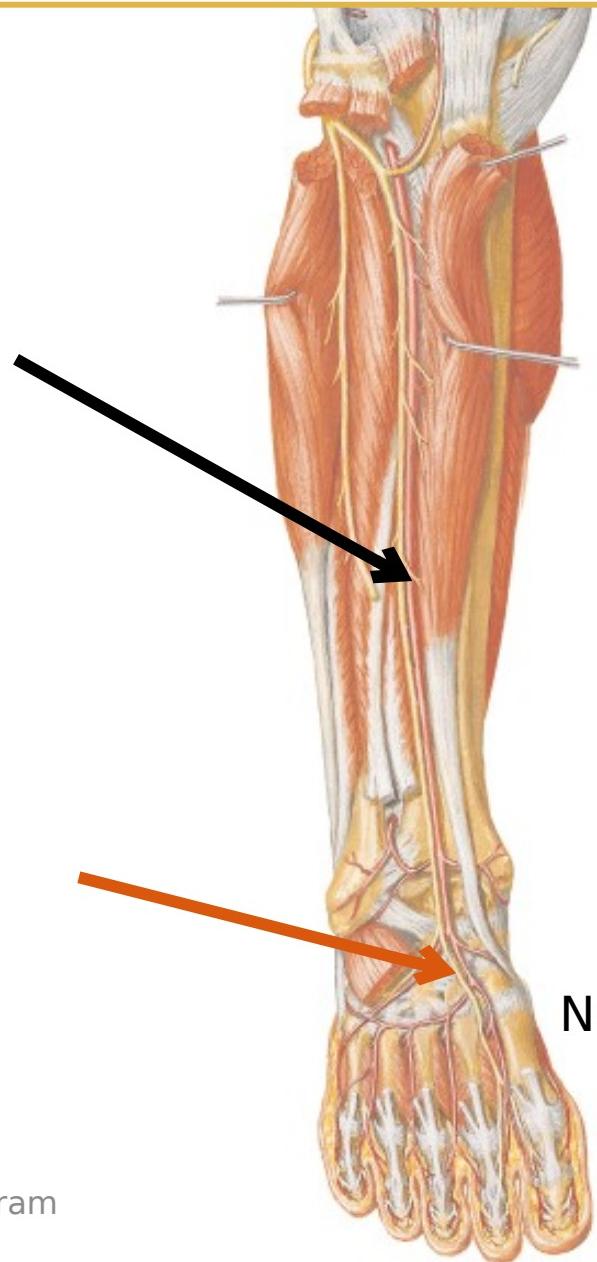
- -One of the 2 terminal brs. of the popliteal artery.
- -Begins at distal border of popliteus
- -It passes through an **opening** in the interosseous membrane to reach the anterior compartment.
- -In lower part of leg it lies between extensor hallucis longus and extensor digitorum

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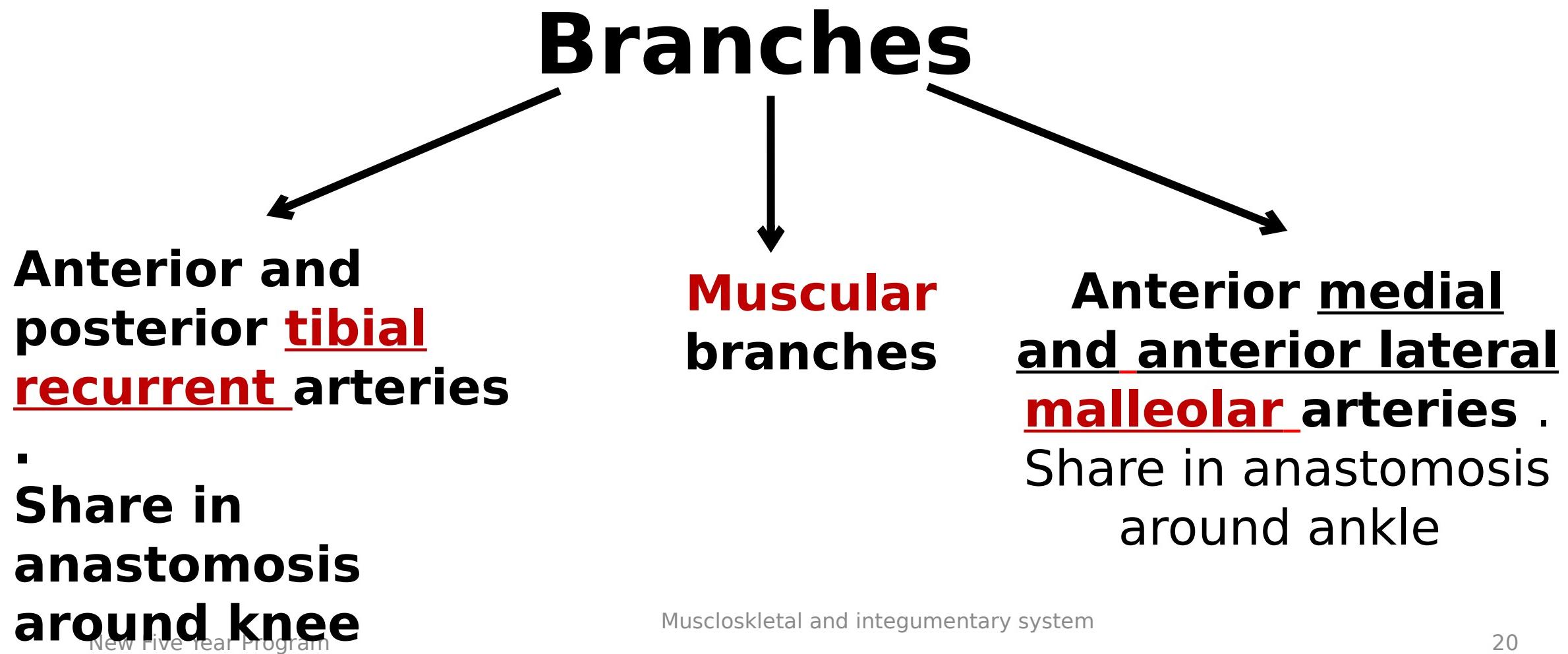
Anterior Tibial Artery



**It continues as
dorsalis pedis
artery by
passing in front
of the ankle
joint between 2
malleoli .**

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Branches of Anterior Tibial Artery



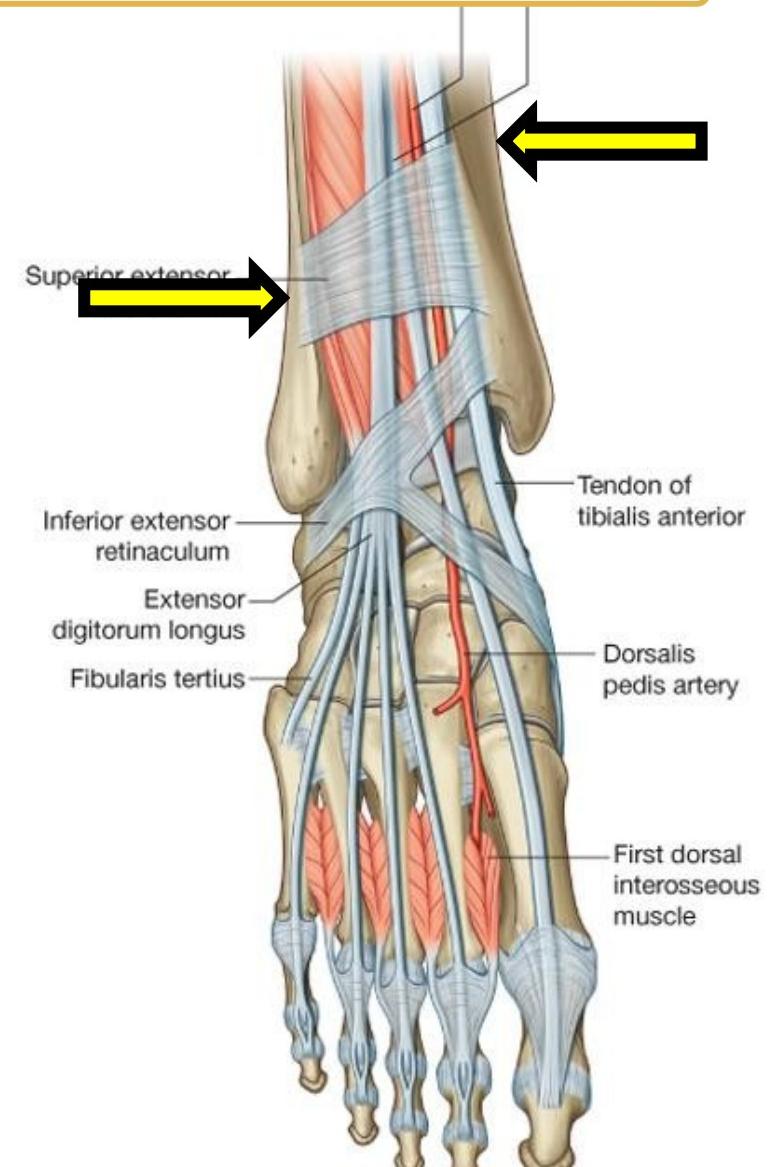


SOR

Superior extensor retinaculum

Anterior extensor retinaculum:

- ❖ Thickened band of deep fascia extends from the lower part of the anterior border of tibia to lower part of the anterior border of fibula.



Grays for students

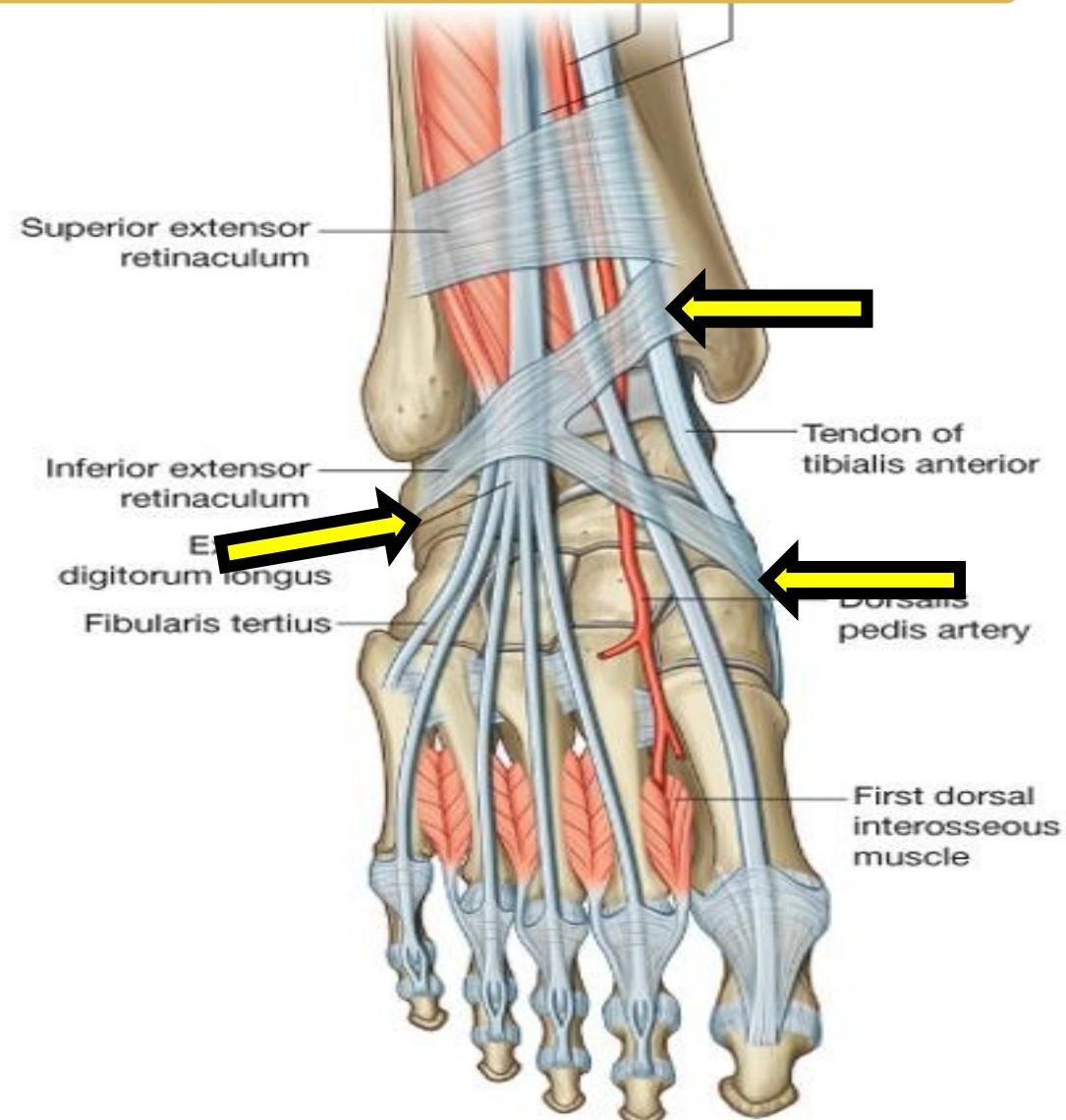


inferior extensor retinaculum

or extensor retinaculum

Y shaped :the stem laterally is attached to the upper surface of calcaneus

-Medially the proximal band attached to the medial malleolus while the distal band attached to the planter



Structures deep to retinaculum

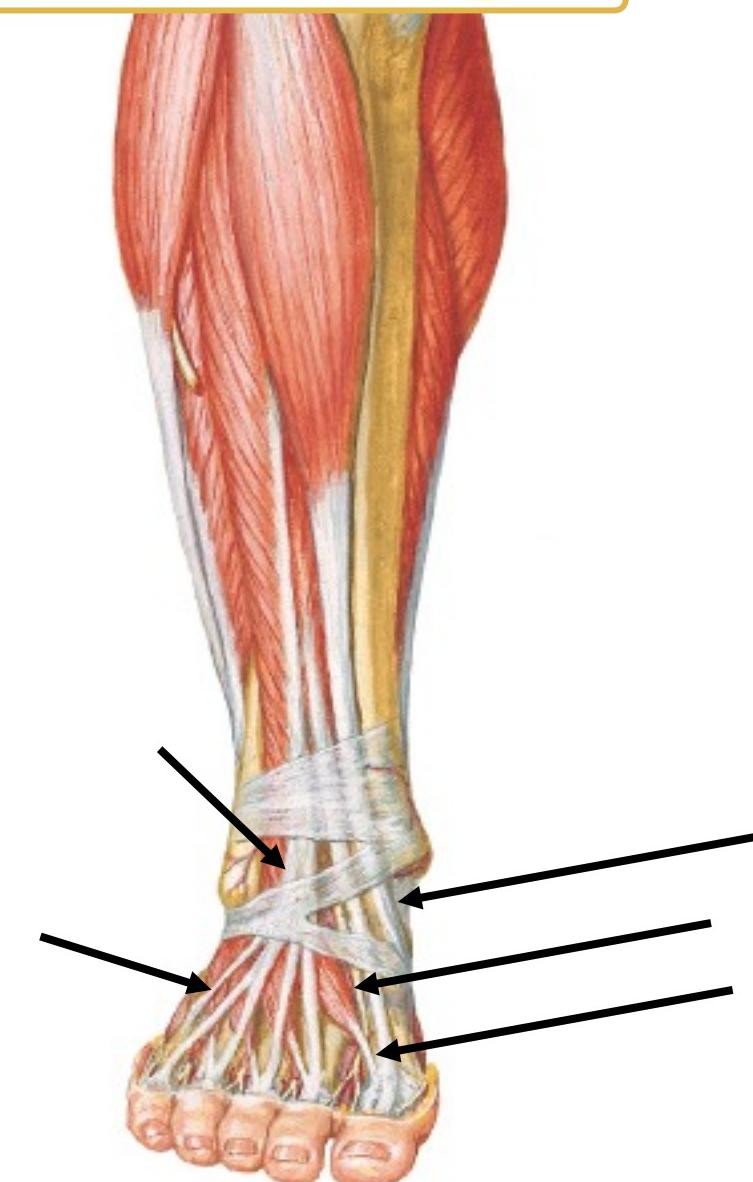


***Tom has very nice
dogs and pigs***

- Tibialis anterior**
- Extensor hallucis**
- Anterior tibial vessels**
- Anterior tibial nerves**
- Extensor digitorum**
- Peroneus tertius**



Musculoskeletal and integumentary system



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Lecture Quiz



Question 1 A patient lost the ability to invert his foot the lesion affected which of the following muscles

- a) Tibialis anterior
- b) Peroneus longus
- c) extensor hallucis

Question 2

Enumerate branches of anterior tibial nerve

Question 3

Enumerate structures deep to extensor retinaculum

SUGGESTED TEXTBOOKS



1. (Regional anatomy by Richard Snell 9th edition)